Please amend claim 1 as set forth below.

Listing of Claims

Claim 1 (Currently Amended): A system for compensating for phase errors in the real and quadrature channels of a phase modulation system comprising:

an I input channel for receiving the real (I) components of a ~~carrier~~ signal;

a Q input channel for receiving the quadrature (Q) components of a ~~carrier~~ signal; and

a compensation circuit for compensating one or the other of said I channel and Q channel signals by multiplying said I channel and Q channel signals together to develop a first product signal and averaging said product signal to generate a compensated channel signal.

Claim 2 (Amended): The system as recited in claim 1, wherein said compensated channel signal is ~~the Q channel compensated channel signal~~ used to compensate said Q channel signals.

Claim 3 (Original): The system as recited in claim 1, wherein said compensation circuit includes a first multiplier for multiplying said I channel signal and said Q channel signal to generate said first product signal.

Claim 4 (Original): The system as recited in claim 3, further including an averaging circuit for time averaging said product signal.

Claim 5 (Original): The system as recited in claim 4, wherein said time averaging circuit is a low pass filter.

Claim 6 (Amended): ~~The~~ A system ~~as recited in claim 4, further including~~ for compensating for phase errors in the real and quadrature channels of a phase modulation system comprising:

an I input channel for receiving the real (I) components of a signal;

a Q input channel for receiving the quadrature (Q) components of a signal;

a compensation circuit for multiplying said I channel and Q channel signals to develop a first product signal and averaging said product signal to generate a compensated channel signal;

6-11, 13, 14

said compensation circuit including a first multiplier for multiplying said I channel signal and said Q channel signal together to generate said first product signal and a time averaging circuit for time averaging said first product signal; and

a second multiplier for multiplying said I channel signal by a predetermined constant to define a second product signal.

Claim 7 (Original) The system as recited in claim 6, further including a third multiplier for multiplying said first and second product signals to generate a third product signal.

Claim 8 (Original): The system as recited in claim 7, further including a summer for summing said Q channel signal with said third product signal, wherein said Q channel signal is applied to a non-inverting input of said summer and said third product signal is applied to an inverting input of said summer to generate a compensated Q channel signal.

Claim 9 (Original): The system as recited in claim 8, wherein said compensated Q channel signal includes a compensation factor which is a function of said phase error.

Claim 10 (Original): The system as recited in claim 9, wherein said compensated Q channel signal is the compensation factor multiplied by $\sin(\omega t)$.

Claim 11 (Original): The system as recited in claim 10, wherein said compensation factor is $\cos(\psi)$.

Claim 12 (Currently Amended): A method for compensating for phase errors in the real (I) and quadrature (Q) channels of a phase modulation system comprising the steps of:

a) multiplying the I channel signal by the Q channel signal to develop a first product signal;

b) averaging the product signal over time, defining a time averaged product signal; and

c) generating a compensated Q channel signal based upon said time averaged product signal.

Claim 13 (Currently Amended): ~~The~~ A method ~~as recited in claim 12, including~~ for compensating for phase error in the real (I) and quadrature (Q) channels of a phase modulation system comprising the steps of:

(a) multiplying the I channel signal and the Q channel signal together to develop a first product signal;

(b) averaging the product signal over time, defining a time averaged product signal;

(c) generating a compensated Q channel signal based upon said time averaged product signal; and

(d) multiplying said time averaged product signal by a multiple of said I channel signal to generate a second product signal.

Claim 14 (Original): The method as recited in claim 13, including subtracting said second product signal from said Q channel signal.